

REMARKS

These claims (with slight amendments) are those presented and discussed at the interview held February 27, 2009 with Examiner Fangemonique Smith and her supervisor. The applicant thanks the Examiners for the good discussion there. It was my understanding that an interview summary would be provided by the Examiner not the office action based on the prior claims.

The claims presented in this amendment were discussed in the interview and it was my understanding that at the least the amendment would overcome the present grounds of rejection.

The claims as amended require a device comprising both a sensing system under the foot and a stimulator system on a user's skin area operative in response to foot pressure signals to allow the wearer to regain balance during both standing and gait (walking). A video was presented at the interview showing a wearer with balance problems both using the device to achieve a steady walk with eyes closed, and with a disturbed off balance gait with the device turned off.

A video was also shown of the use of a device according to Allum.

The Allum reference is limited to a platform at a fixed location wherein the platform is driven to tilt forward or sideways and the patient is asked to first establish an upright position which can include information in response to signals generated from under foot or other sensors. Once the platform tilting begins, the sensors are only operational where they might help in the reestablishment or maintenance of an upright position (Allum col. 6). The sensors are dedicated to a platform and

cannot be used as a layer attached to the user's feet particularly in gait.

Applicants' system operates continuously during standing and gait, and unlike Allum provides a feedback during gait that the user can interpret to maintain balance throughout the constantly changing force dynamics operative on the feet while walking. Balance during gait involves a complex set of dynamics which differ in not always having a user's body weight centered over any one or both feet as the user walks. In applicants' new claims 71 and 72 the system provides feedback to the user via the array of plural stimulators to provide individualized spatial mapping and temporal information to allow complex, multi-dimensional and time varying corrective action.

Allum is a platform system where the platform artificially induces balance problems by moving in pitch (forward and backward) as well as roll (side to side). This is an unnatural way to detect the problems of unsteady standing and walking as the present invention does. There is no shown correlations in the reference between what information will correct and steady a person's standing and gait in the real world environment. In the first place those with steadiness issues must be able to correct for the normal imbalance from walking on a flat and steady floor. Allum has no teaching for that as Allum requires a continuously tilting support ground. That would be highly unrecommended for those with unsteady gait. Just navigation on a regular floor is challenge enough.

Where Allum further fails in its teaching is in the fact that it is not adapted to conditions of both standing and gait as claimed. Allum is critically dependent on a non-moving or

standing patient where the patient does not move, weighting and un-weighting each foot in sequence with much of the time having the weight born by just one foot as is the case in the claimed system's ability to operate in both standing and gait.

Allum also fails to suggest the use of feedback stimulation in the form of the claimed single two dimensional array for stimulating from the two dimensional set of balance inputs that the layer under the foot generates when natural balance fails. Allum throughout is directed at analysis and not correction, giving only generalized information on feedback without the specific technology taught in applicant's document. Indeed claims in Allum to feedback control should be considered non-enabling for anything claimed by applicant.

Au is pure diagnosis and there is nothing in either of Au or Allum to hint at making a feedback system for the claimed two dimensional array of stimulators that provides continuous (as required to address gait stabilization) feedback throughout the conditions of standing and gait.

Au is merely a means for recording the response of foot sensors to a patient's walking for diagnostic purposes and does not provide any immediate user feedback for use in correction during standing and gait as claimed.

Waters merely shows foot manipulation in a non-walking environment to allow shaping an orthotic. The combination of Allum, Au and/or Waters does not anticipate or make obvious two dimensional array of stimulators configured to provide the spatial and temporal mapping of foot sole force distributions required to provide useful balance control feedback during unrestricted walking outside of a laboratory environment.

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The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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